

TWO NEW SPECIES OF *MACROPHYA IMITATOR* GROUP (HYMENOPTERA, TENTHREDINIDAE) FROM CHINA

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Abstract Two new species of *Macrophya imitator* group are described from Sichuan and Jilin, China, *Macrophya kangdingensis* Wei et Li, sp. nov. and *Macrophya bui* Wei et Li, sp. nov. The type specimens of new species are deposited in the Insect Collection of Central South University of Forestry and Technology, Changsha, Hunan, China.

***Macrophya kangdingensis* Wei et Li, sp. nov.** (Figs 1–11)

Body length 7.5 mm in female and 7.0 mm in male. The new species is a member of *M. imitator* group and is similar to *M. imitoides* Wei, 2007 and *M. jiaozhaoae* Wei & Zhao, 2010. *M. kangdingensis* differs from *M. imitoides* in the posterior of pronotum without white macula; frons distinctly convex and above top of eyes, the punctures on frons large and about 1/3 diameter of an ocellus; the postocellar area about 1.5 times broader than long and densely punctured, weakly shiny; lateral furrows fine and weak; body with long and dense hairs, the hairs on mesepisternum about 2 times as long as diameter of an ocellus; the valvaceps long and narrow with roundish anterior corner and acute posterior corner. *M. kangdingensis* differs from *M. jiaozhaoae* in the frons distinctly convex and above top of eyes, the punctures on frons about 1/3 diameter of an ocellus; the postocellar area about 1.5 times broader than long and densely punctured, weakly shiny; lateral furrows fine and weak; body with long and dense hairs, the hairs on mesepisternum about 2 times as long as diameter of an ocellus; the posterior corner of metepimeron densely punctured without shiny area; the lateral setae on sheath short and weakly curved in dorsal view; the valvaceps long and narrow with roundish anterior corner and acute posterior corner. In *M. imitoides* the posterior of pronotum with narrow white macula; frons flat and not above top of eyes, the punctures on frons small and about 1/4 diameter of an ocellus; the postocellar area about 2 times broader than long and hardly punctured, strongly shiny; lateral furrows deep; body with short hairs, the hairs on

mesepisternum about 1.3 times as long as diameter of an ocellus; the valvaceps broad with protruding anterior corner and obtuse posterior corner. In *M. jiaozhaoae* the frons flat and not above top of eyes, the punctures on frons small and about 1/4 diameter of an ocellus; the postocellar area about 2 times broader than long and hardly punctured, strongly shiny; lateral furrows deep; body with short hairs, the hairs on mesepisternum about 1.3 times as long as diameter of an ocellus; the posterior corner of metepimeron largely polished, with about 10 punctures in upper half; the lateral setae on sheath very long and strongly curved in dorsal view; the valvaceps very short and broad without posterior corner.

Holotype ♀, Paomashan (30°05'N, 101°57'E; alt. 2 505 m), Kangding County, Sichuan Province, China, 29 July 2005, XIAO Wei leg. Paratypes: 22 ♀♀, 5 ♂♂, Paomashan (30°05'N, 101°57'E; alt. 2 505 m), Kangding County, Sichuan Province, China, 19–29 July 2005, XIAO Wei and ZHOU Hu leg.; 1 ♂, Hailuoguo (29°03'N, 102°07'E; alt. 2 200 m), Luding County, Sichuan Province, China, LI Ze-Jian leg.

***Macrophya bui* Wei et Li, sp. nov.** (Figs 12–22)

Body length 8.5 mm in female and 7.5 mm in male. The new species is a member of *M. imitator* group and is similar to *M. parimitator* Wei, 1998 but differs from it in the postocellar area 1.7 times broader than long; the hind trochanters in both sexes almost entirely black; the white stripe on the subapical part of hind tibia about 2/5 length of hind tibia; the inner side of the metepimeron appendage with a distinct shiny and obtuse carina; the ovipositor sheath as long as fore tibia; the female serrulae low and flat, with many minute teeth, the middle serrulae each with 2 proximal and 13–16 distal subbasal teeth (in *M. parimitator* the postocellar area 2.0 times broader than long; the hind trochanters in both sexes largely black; the white stripe on the subapical part of hind tibia shorter than 1/3 length of hind tibia; the inner side of the metepimeron appendage without a shiny and obtuse carina; the

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ovipositor sheath distinctly longer than fore tibia; the female serrulae oblique and weakly protruding, with several larger teeth, the middle serrulae each with 2 proximal and 5–7 distal subbasal teeth).

Holotype ♀, Changbaishan (42° N, 128.1° E; alt. 750 m), Erdao, Jilin Province, China, 30 Apr. 1999, WEI Mei-Cai and NIE Hai-Yan leg. Paratypes: 1 ♂, Changbaishan, alt. 750 m, Erdao, Jilin Province, China, 1 July 1999, WEI Mei-Cai and NIE

Hai-Yan leg.; 1 ♂, Changbaishan, alt. 1 100 m, Jilin Province, China, 2 July 1999, WEI Mei-Cai and NIE Hai-Yan leg.; 1 ♀, Baihe, Changbaishan, alt. 740 m, Jilin Province, China, 23 June 1986, BU Wen-Jun leg.; 1 ♂, Changbaishan Natural Reserve, alt. 1 100 m, Jilin Province, China, 3 July 1986, BU Wen-Jun leg.; 1 ♂, Baishan Station, Changbaishan, alt. 1 100 m, Jilin Province, China, 3 July 1986.

Key words Hymenoptera, Tenthredinidae, *Macrophya*, *Macrophya imitator* group, new species, China.

中国钩瓣叶蜂属 (膜翅目, 叶蜂科) *Macrophya imitator* 种团两新种

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摘要 记述采自中国四川和吉林钩瓣叶蜂属 *Macrophya imitator* 种团 2 新种: 康定钩瓣叶蜂 *Macrophya kangdingensis* Wei et Li, sp. nov. 和卜氏钩瓣叶蜂 *Macrophya bui* Wei et Li, sp. nov.。新种模式标本保存于中南林业科技大学昆虫模式标本室。

关键词 膜翅目, 叶蜂科, 钩瓣叶蜂属, 密鞘钩瓣叶蜂种团, 新种, 中国。

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钩瓣叶蜂属 *Macrophya* Dahlbom, 1835 是膜翅目 Hymenoptera 叶蜂科 Tenthredinidae 叶蜂亚科 Tenthredininae 的第 3 大属。迄今, 该属在中国已经记录 105 种 (Wei et al., 2006; Wei & Li, 2009; Zhu & Wei, 2009; Taeger et al., 2010; Zhao et al., 2010; Zhao & Wei, 2011; Li et al., 2012; Zhu et al., 2012)。在中国重点地区叶蜂区系调查过程中, 发现钩瓣叶蜂属 *M. imitator* 种团 2 新种。报道如下。

1 康定钩瓣叶蜂, 新种 *Macrophya kangdingensis* Wei et Li, sp. nov. (图 1~11)

雌虫 体长 7.5 mm (图 1)。体和足黑色; 上顎基半部、腹部第 1 背板后缘约 1/3、各足基节端缘、前中足第 1 转节端部和第 2 转节大部、后足转节全部、前足股节和胫节前侧条斑、中足胫节前侧亚端部点斑、后足胫节背侧亚端部约占后足胫节 1/3 长的条斑, 白色。体毛密集, 银色; 鞘毛微弱弯曲, 黑褐色。翅淡烟色透明, 无烟斑, 翅痣和翅脉黑褐色。

头部背侧 (图 3) 光泽较强烈, 刻点较粗大, 刻点间光滑间隙显著, 无明显刻纹; 上唇无明显刻点, 具细弱刻纹; 唇基刻点粗大浅弱, 光泽较强; 中胸背板刻点小于头部, 刻点间光滑间隙狭窄; 中胸小盾片刻点稍大; 小盾片附片具少许刻点和刻纹; 后胸小盾片无明显刻点, 刻纹十分细弱; 中胸前侧片具光泽, 刻点较密集, 上半部刻点稍大, 下半部刻点渐变细

小; 中胸后上侧片光泽暗淡, 皱纹细密; 中胸后下侧片前部 3/5 高度光滑, 无刻点和刻纹, 光泽极强, 后部 2/5 具少许浅大刻点, 刻纹细弱; 后胸前侧片外侧刻点细密, 光泽微弱, 腹侧面无明显刻点, 具微细刻纹; 后胸后侧片隆起部刻点较显著, 注部刻点浅弱模糊, 后角及小型附片刻点稍显密集; 腹部第 1 背板大部光滑, 两侧具少许浅弱刻点, 其余各节背板光泽较弱, 散布少许细小刻点, 具细弱刻纹; 后足基节腹侧及外侧刻点密集, 刻点间隙狭窄; 后足股节外侧刻点不十分密集, 刻点间隙明显; 锯鞘端侧面刻纹模糊。

上唇端缘近截形; 唇基基部明显宽于复眼内缘下端间距, 两侧向前明显收敛, 前缘缺口深弧形, 深达唇基 1/3 长, 侧叶较亚三角形, 稍突出 (图 4); 颞眼距约 0.5 倍于中单眼直径; 中窝模糊; 侧窝极细浅, 短沟状; 额区圆钝鼓起, 高于复眼顶面; 单眼中沟细浅, 后沟浅弱模糊; POL: OOL: OCL = 5: 12: 9; 单眼后区不隆起, 后部明显下倾, 宽长比约为 1.5, 侧沟细弱, 向后稍分歧; 背面观后头两侧强烈收缩; 后颊脊全缘式。触角粗短丝状, 等长于头胸部之和, 稍短于腹部; 第 2 节长约 1.2 倍于宽, 第 3 节 1.5 倍于第 4 节长 (3: 2), 短于第 4、5 节之和 (18: 23), 鞭节中部稍侧扁、膨大, 端部 4 节短缩 (图 5)。中胸小盾片低弱隆起, 无脊和顶点, 顶面低于中胸背板平面; 小盾片附片中纵脊低短; 后胸小盾片中

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图 1~11 康定钩瓣叶蜂, 新种 *Macrophya kangdingensis* Wei et Li, sp. nov.

1, 3~5. 雌 (female) 2, 9. 雄 (male) 1~2. 成虫背面观 (adult, dorsal view) 3~4, 9. 头部 (head) 3. 背面观 (dorsal view) 4, 9. 前面观 (front view) 5. 触角 (antenna) 6. 锯鞘侧面观 (ovipositor sheath, lateral view) 7. 锯腹片 (lancet) 8. 锯腹片第 8~10 锯刃 (8^{th} – 10^{th} serrulae) 10. 生殖铗 (gonoforceps) 11. 阴茎瓣 (penis valve) 比例尺 (scale bars): 1~2 = 1 mm; 7, 10 = 100 μm ; 8, 11 = 50 μm

纵脊略显锐利;中胸后侧片背缘平台约 1.0 倍于中单眼直径;后胸后侧片后角稍延伸,附片小平台型;淡漠区间距约 2.2 倍于淡漠区宽。后足胫节内端距约 0.78 倍于后足基跗节长(7:9);后足基跗节细长,约等长于其后 4 跗分节之和;爪内齿明显短于外齿。前翅 cu-a 脉位于 1M 室基部 1/3, 2r 脉交于 2Rs 室端部 1/4, 2Rs 室明显短于 1Rs 室, 3r-m 脉微弱外倾, 外下角不尖出, 臀室收缩中柄较短, 约 0.6 倍于 1r-m 脉长;后翅臀室具柄式, 臀室柄约 0.6 倍于 cu-a 脉长。锯鞘约等长于中足胫节和后足基跗节, 鞘端长于锯鞘基(4:3), 背面观鞘毛较短, 稍弯曲;侧面观锯鞘端部圆钝(图 6);锯腹片 21 锯刃(图 7), 锯刃微弱倾斜, 刃齿较大且少, 中部锯刃通常具 2 个内侧亚基齿和 7~8 个外侧亚基齿, 节缝刺毛带较宽, 刺毛较稀疏, 第 8~10 锯刃(图 8)。

雄虫 体长 7.0 mm(图 2);体色与构造类似与雌虫, 但上唇全部、唇基除基缘外白色(图 9), 前中足转节大部白色, 前中足股节和胫节前侧、前中足跗节腹侧大部浅褐色;下生殖板长大于宽, 端缘圆钝;生殖铗(图 10);阴茎瓣(图 11)。

正模♀, 四川康定跑马山(30°05'N, 101°57'E;海拔 2 505 m), 2005-07-29, 肖炜采。副模: 22 ♀♀, 5 ♂♂, 地点同正模, 2005-07-19~29, 肖炜、周虎采;1 ♂, 四川泸定县海螺沟(29°03'N, 102°07'E;海拔 2 200 m), 2009-07-03, 李泽建采。

分布: 中国(四川)。

词源: 新种种名源自模式标本产地。

鉴别特征 新种属于 *M. imitator* 种团成员, 与拟鞘钩瓣叶蜂 *Macrophya imitoides* Wei, 2007 以及焦氏钩瓣叶蜂 *M. jiaozhaoae* Wei & Zhao, 2010 近似, 但本种前胸背板后缘无白边;额区明显鼓凸, 高出复眼顶面, 刻点较大, 多数刻点直径约为前单眼直径的 1/3;单眼后区刻点密集, 光泽弱, 宽长比明显小于 2, 侧沟细弱;体毛密长, 中胸前侧片细毛长约为侧单眼直径 2 倍;阴茎瓣头叶较窄长, 前端角圆钝, 后尾角强烈尖出等与 *M. imitoides* 不同(*M. imitoides* 前胸背板后缘具白边;额区不鼓凸, 不高出复眼顶面, 刻点较小, 多数刻点直径约为前单眼直径的 1/4;单眼后区刻点不明显, 光泽强, 宽长比等于 2, 侧沟深;体毛较短, 中胸前侧片细毛长约为侧单眼直径 1.3 倍;阴茎瓣头叶较宽大, 前端角明显突出, 后尾角不尖出);本种额区明显鼓凸, 高出复眼顶面, 刻点较大, 多数刻点直径约为前单眼直径的 1/3;单眼后区刻点密集, 光泽弱, 宽长比明显小于 2, 侧沟细弱;体毛密长, 中胸前侧片细毛长约为侧单眼直径 2 倍;后胸后侧片后角刻点均匀、密集, 无光滑区域;锯鞘背面

观鞘毛短, 微弱弯曲;阴茎瓣头叶窄长, 后尾角强烈尖出等, 与 *M. jiaozhaoae* 不同(*M. jiaozhaoae* 额区不鼓凸, 不高出复眼顶面, 刻点较小, 多数刻点直径约为前单眼直径的 1/4;单眼后区刻点稀疏, 光泽强, 宽长比等于 2, 侧沟深;体毛短, 中胸前侧片细毛长约为侧单眼直径 1.2 倍;后胸后侧片后角大部光滑, 仅上后侧具 10 余枚刻点;锯鞘背面观鞘毛密长, 强烈弯曲;阴茎瓣头叶十分宽短, 无后尾角)。

2 卜氏钩瓣叶蜂, 新种 *Macrophya bui* Wei et Li, sp. nov. (图 12~22)

雌虫 体长 8.5 mm(图 12)。体和足黑色;上颚基半部、腹部第 1 背板后缘斑、前足胫节前侧亚端部小斑、中足胫节背侧亚端部小斑、后足胫节背侧亚端部 2/5 长斑, 白色。体毛银色;鞘毛褐色。翅淡烟色透明, 无烟斑, 翅痣和翅脉大部黑褐色。

头部背侧(图 14)光泽稍弱, 刻点密集, 刻点间隙十分狭窄, 无明显刻纹;上唇和唇基略显光亮, 上唇无明显大刻点, 刻纹细弱;唇基刻点粗大浅平, 刻纹不明显, 光泽较强;上眶内侧无光滑区域, 刻点较浅弱, 具细刻纹;中胸背板光泽微弱, 刻点稍细浅、密集, 刻点间隙具明显刻纹;中胸小盾片中央刻点较大, 间隙较宽且光滑, 四周刻点稍密集, 后缘刻纹粗密;小盾片附片光泽暗淡, 无明显刻点, 刻纹明显;后胸小盾片稍具光泽, 刻点模糊, 刻纹细弱;中胸前侧片具光泽, 刻点较密集, 上部刻点稍大, 刻点间隙具细弱刻纹, 中部光泽较强, 下部刻点逐渐变细小, 有细刻纹;中胸后上侧片光泽暗淡, 皱纹粗密;中胸前侧片后缘与中胸后下侧片前部 1/2 区域高度光滑, 无刻点和刻纹, 光泽强;后部 1/2 区域具稀疏刻点和细刻纹, 后缘上角刻点稍粗密;后胸前侧片上部光泽微弱, 刻点模糊, 刻纹细密;后胸后侧片稍具光泽, 大部具稀疏浅平刻点, 刻纹明显, 但不密集, 背缘上部刻点较粗糙, 后角具多枚细浅弱模糊刻点和细弱刻纹。腹部第 1 背板两侧具少许细浅刻点, 中部具细刻纹;其余各节背板具明显细刻纹, 刻点十分稀疏、细小、浅弱;各节背板两侧刻点稍密集。后足基节腹侧及外侧刻点略显密集, 稍具光泽;后足股节外侧刻点稀疏、细浅, 刻点间具细弱刻纹。锯鞘端部边缘具少许细弱刻点, 刻纹模糊。

唇基基部明显宽于复眼内缘下端间距, 两侧向前明显收敛, 前缘缺口深弧形, 深达唇基 2/5 长, 侧叶较宽短, 亚三角形, 端缘稍突出(图 15);颚眼距约 0.5 倍于中单眼直径;中窝浅弱, 痕状;侧窝宽浅;额区顶面平坦, 额脊模糊, 单眼顶面稍高于复眼顶面;单眼中沟细浅, 后沟浅弱模糊;前单眼围沟不



图 12~22 卜氏钩瓣叶蜂, 新种 *Macrophya bui* Wei et Li, sp. nov.

12, 14~16. 雌 (female) 13, 20. 雄 (male) 12~13. 成虫背面观 (adult, dorsal view) 14~15, 20. 头部 (head) 14. 背面观 (dorsal view) 15, 20. 前面观 (front view) 16. 触角 (antenna) 17. 锯鞘侧面观 (ovipositor sheath, lateral view) 18. 锯腹片 (lancet) 19. 锯腹片第 8~10 锯刃 (8^{th} - 10^{th} serrulae) 21. 生殖缺 (gonoforceps) 22. 阴茎瓣 (penis valve) 比例尺 (scale bars): 12~13 = 1 mm; 18, 21 = 100 μm ; 19, 22 = 50 μm

明显发育; POL: OOL: OCL = 5: 12: 9; 单眼后区中部稍隆起, 后部强烈下倾, 宽长比为 1.7, 侧沟前半部窄细, 后半部深沟状, 向后稍分歧; 背面观后头短小, 两侧强烈收缩; 后颊脊低弱, 伸至后眶上缘, 单眼后区后缘无脊。触角粗短丝状, 约等长于头胸部之和, 明显短于腹部之长; 第 2 节长 1.3 倍于宽, 第 3 节约 1.83 倍于第 4 节长 (11: 6), 等长于第 4~5 节之和 (22: 22), 鞭节亚端部稍膨大, 端部 4 节短缩, 末端节稍侧扁变细, 第 7 节长宽比约为 1.6 (图 16)。中胸小盾片低钝隆起, 顶面平坦, 无顶点和脊, 小盾片顶面稍低于中胸背板平面; 小盾片附片中纵脊显著; 后胸小盾片中纵脊低弱; 中胸前侧片中部微弱隆起, 无顶角; 中胸后上侧片背缘平台约 1.2 倍于中单眼直径; 后胸后侧片后角稍延伸, 附片小平台型, 内侧具低弱、光滑钝脊; 淡膜区间距约 2.0 倍于淡膜区宽。后足胫节内端距约 0.74 倍于后足基跗节长 (14: 19), 后足基跗节细长, 稍长于其后 4 跗分节之和 (19: 17), 爪内齿明显短于外齿。前翅 cu-a 脉位于 1M 室基部 1/4 处, 2r 脉交于 2Rs 室端部 1/4 处, 2Rs 室明显短于 1Rs 室, 3r-m 脉微弱外倾, 外下角不尖出, 臀室收缩中柄呈点状, 约 1.3 倍于中单眼直径宽; 后翅臀室具柄式, 柄部稍短于 cu-a 脉 1/2。锯鞘等长于前足胫节, 鞘端稍长于鞘基 (17: 15), 背面观鞘毛稀疏、短小, 稍弯曲, 伸向后侧方; 锯鞘侧面观如图 (图 17)。雌虫锯腹片 22 锯齿 (图 18), 锯齿低平, 几乎不突出, 第 8~9 锯齿刃间膜约等长于第 9 锯齿 1/2 宽, 中部锯齿具 2 个内侧亚基齿和 13~16 个外侧亚基齿, 亚基齿细小; 节缝刺毛带较窄, 刺毛稍密集, 相邻刺毛带间具短小刺毛, 第 8~10 锯节如图 (图 19)。

雄虫 体长 7.5 mm (图 13); 体色与构造类似于雌虫, 但前中足基节外侧大部、前中足股胫节前侧、前中足跗节腹侧大部、后足转节少部和腹部第 1 背板中央后缘宽边白色; 唇基前缘缺口亚三角形 (图 20); 下生殖板长稍大于宽, 端缘圆钝; 生殖铗 (图 21); 阳茎瓣 (图 22)。

正模 ♀, 吉林二道长白山, 海拔 750 m, 1999-04-30, 魏美才、聂海燕采。副模: 1 ♂, 吉林二道长白山, 海拔 750 m, 1999-07-01, 魏美才、聂海燕采; 1 ♂, 吉林长白山, 海拔 1100 m, 1999-07-02, 魏美

才、聂海燕采; 1 ♀, 吉林长白山白河, 海拔 740 m, 1986-06-23, 卜文俊采; 1 ♂, 吉林长白山保护区, 海拔 1100 m, 1986-07-03, 卜文俊采; 1 ♂, 吉林长白山白山站, 海拔 1100 m, 1986-07-03, 采集人不详。

分布: 中国 (吉林)。

词源: 新种种名源自模式标本采集者姓氏。

鉴别特征 新种属于 *M. imitator* 种团成员, 与长鞘钩瓣叶蜂 *M. parimitator* Wei, 1998 十分近似, 但本种单眼后区宽长比约为 1.7; 两性后足转节几乎完全黑色; 后足胫节背侧亚端部白斑长度约占后足胫节 2/5 长; 后胸后侧片的附片内侧具明显的光滑钝脊; 锯鞘等长于前足胫节; 雌虫锯腹片锯齿低平, 刃齿细小且多枚, 中部锯齿齿式为 2/13-16 (后者单眼后区宽长比约为 2.0; 后足转节大部白色, 第 1 转节腹侧具 1 明显黑斑; 后足胫节背侧亚端部白斑长度短于后足胫节 1/3 长; 后胸后侧片的附片内侧无光滑钝脊; 雌虫锯鞘显著长于前足胫节; 雌虫锯腹片锯齿稍倾斜突出, 刃齿大型且较少, 中部锯齿齿式为 2/5-7)。

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